

established by means of the open water-suffused stomata. This would account for the effectiveness of the film at night and for its lack of effectiveness with *Cyperus* with its very narrow stomata. The authors state that there are difficulties in the incipient guttation explanation as applied to excised leaves.—WM. CROCKER.

• **Turgor movements.**—BLACKMAN and PAINE,¹⁹ by use of a special conductivity cell, have studied the conductivity of the liquid extruded from the lower half of the excised pulvinus of *Mimosa pudica* due to the shock stimulus. The shock response gives an increase in conductivity, but not nearly enough to attribute the contraction to increased extrusion of solutes. They believe, therefore, that the contraction is due to a sudden condensation of solutes within the pulvinal cells of the lower half of the pulvinus. They consider the conductivity method far superior to the plasmolytic method used by previous authors, for it answers directly the amount of movement of solutes. Under certain conditions they get autonomic movements of this organ similar to those of the leaflets of *Desmodium gyrans*. A slow rise of temperature up to 50° C. shows little increase in exosmosis of electrolytes from this organ. The increase of permeability at higher temperatures seems to be due to lethal irreversible changes.—WM. CROCKER.

Alternation of generations in *Padina*.—*Padina variegata*, one of the Dictyotaceae, is abundant at Beaufort, North Carolina, where it has been studied by WOLFE.²⁰ Sperms, eggs, and tetraspores are borne on 3 separate plants which look alike in the vegetative condition, but which are easily recognized during reproduction. Tetraspores give rise to only male and female plants in approximately equal numbers, so that sex is probably predetermined during the reduction division in the tetraspore mother cell. Fertilized eggs produce only tetrasporic plants, so that there is an alternation of sporophyte and gametophyte generations. Eggs often germinate without fertilization, but plants of such parthenogenetic origin do not mature. It would be interesting to know the chromosome numbers, especially in the parthenogenetic plants, and we hope that WOLFE, who is familiar with the cytological technique of the algae, will investigate this phase of the problem.—C. J. CHAMBERLAIN.

The luminous moss.—TODA²¹ has made a physiological study of *Schistostega osmundacea*, the so-called luminous moss, his material having been obtained from a cave in Japan. He found the optimum intensity of light as well as the minimum and maximum intensities in terms of Bunsen's unit. In a dark place

¹⁹ BLACKMAN, V. H., and PAINE, S. G., Studies in the permeability of the pulvinus of *Mimosa pudica*. Ann. Botany 32:69-85. 1918.

²⁰ WOLFE, J. J., Alternation and parthenogenesis in *Padina*. Jour. Elisha Mitchell Scientific Soc. 34:78-109. 1918.

²¹ TODA, VISCOUNT YASUMOCHI, Physiological studies on *Schistostega osmundacea* (Dicks) Mohr. Jour. Coll. Sci. Tokyo 40:no. 5. pp. 30. pls. 2. 1918.